

Claims:

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- 10 1. Method of mixing, in one or more container(s), magnetic or (super)paramagnetic particles with a fluid, using more than one magnet, whereby the containers are subjected to magnetic fields with different and changing directions by moving the magnets with respect to the position of the container(s) and/or by moving the containers with respect to the positions of the magnets, characterized in that the magnets and the holders for the containers are placed in intervening array geometries.
- 15 2. Method according to claim 1, wherein the containers, by moving either the containers or the magnets, are subjected to magnetic fields of opposite polarity.
- 20 3. Method according to claim 1 or 2, wherein, as a result of moving either the magnets or the containers, the containers are repeatedly moved between two magnets that face each other with the same pole.
- 25 4. Method according to any of claims 1-3, wherein the magnets are moved with respect to the position of the containers or the containers are moved with respect to the position of the magnets in such a way that the magnetic or (super)paramagnetic particles are moved through the fluid to one side of the container by bringing a first magnet with its magnetic pole close to the wall of the container and, subsequently are moved to the opposite side by bringing a second magnet close to the opposite wall of the container, whereby said second magnet has the same magnetic pole as the first magnet..
- 30 5. Method according to any of the preceding claims, wherein the magnets are moved with respect to the containers.
- 35 6. Device for mixing magnetic or (super)paramagnetic particles in one or more containers with a fluid, said device comprising means for holding said one or more containers and more than one magnets and means for moving said magnets with respect to the position of said containers and/or means for moving said containers with respect to the position of said magnets in such a way that the containers are subjected to magnetic fields with different and changing directions.
- 40 7. Device according to any of claims 1-6, the device being provided with a heat block that is positioned in such a way that it can be moved into close proximity with the containers so as to warm their contents, and moved away again.
8. Device according to claim 7, wherein the heatblock is positioned underneath the containers and has wells which enclose the tips of the containers when the heatblock is brought into close proximity with the containers.
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Sub D97 9. Device according to claim 1, wherein each magnet is oriented in such a way that it repels each of its neighboring magnets.

Sub A5 10. Device according to any of claims 1-9, wherein magnets can be moved back and forth on straight parallel paths along opposite sites of each container in such a way that the direction of the magnetic field in each container is repeatedly reversed.

Sub B117 11. Device according to claim 1, wherein the magnets are placed in line in such a way that all magnets that are in line have their poles oriented in the same direction, and that all magnets in a neighboring line have their poles oriented in the reverse direction with respect to the poles of the magnets in the first line.

Sub A5 12. Device according to any of claims 1-11, wherein the magnets can also be moved in a vertical direction so as to be positioned at different heights with respect to the walls of the containers.

13. Device according to any of claims 1-12 wherein the containers are part of a closed system.

20 14. Device according to any of claims 1-13 wherein the containers are tube-shaped vessels provided with a tip with a smaller diameter.

15. Use of a device of any of claim 6-13 in a method for the isolation of nucleic acid.

25 16. Method for the isolation of nucleic acid from starting material comprising the following steps:

- (a) bringing the starting material together with an appropriate lysis buffer and magnetisable silica particles into one or more containers of a device according to claim 11,
- 30 (b) mixing the ingredient of the vessels by moving the magnet array with respect to the containers in such a way that the direction of the magnetic field in each container is repeatedly reversed for a sufficient amount of time with the magnets at a height that is adjusted to the volume of the sample,
- (c) collecting the particles at a wall of the container using the magnets,
- 35 (d) removing most of the sample liquid from the device,
- (e) adding a sufficient amount of washing buffer to the device,
- (f) repeating step (b) to (d),
- (g) adding a suitable amount of elution buffer to the device,
- (h) drawing the particles down into the tip of the container by moving the magnets to a lower position
- 40 (i) Optionally heating the container by moving a heatblock into close proximity with the containers.
- (j) optionally removing an appropriate amount of elution buffer from the device

~~(k)~~
~~(l)~~
~~(m)~~

repeat step (b),
move the magnets in a vertical direction to a position above the fluid level,
collect the elution buffer with the isolated nucleic acid container therein.